CLAIMS

**What is claimed is:**

1.     A method for selecting at least one correction factor for an audio system, the method comprising:

5          generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations;

recording transfer functions for the generated acoustic signals at a plurality of listening positions;

determining at least one potential correction factor;

10          modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions;

statistically analyzing across at least one frequency of the predicted transfer functions for the plurality of listening positions; and

selecting a correction factor based on the statistical analysis.

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2.     The method of claim 1, where the potential correction factor is a non-temporal correction factor.

3.     The method of claim 2, where the non-temporal correction factor is selected from the

20     group consisting of gain, amplitude, and equalization.

4.     The method of claim 3, where the equalization is selected from the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization.

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5.     The method of claim 1, where the potential correction factor is a temporal correction factor.

6.     The method of claim 1, where the statistical analysis indicates efficiency of the

30     predicted transfer functions for the plurality of listening positions.

7.      The method of claim 6, where efficiency is examined for predetermined frequencies.

8.      The method of claim 7, where selecting a correction factor based on the statistical analysis comprises selecting a value for the correction factor to increase efficiency of the audio system in the predetermined frequencies.

9.      The method of claim 8, where the potential correction factor comprises potential volume correction; and

where selecting a value to increase efficiency comprises selecting a value that decreases volume of at least one of the loudspeakers in the audio system.

10.     The method of claim 1, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.

11.     The method of claim 1, where the statistical analysis indicates flatness for the predicted transfer functions.

12.     A machine readable medium having software for causing a computer to execute a method, the machine readable medium comprising:

instructions for generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations;

instructions for recording transfer functions for the generated acoustic signals at a plurality of listening positions;

instructions for determining at least one potential correction factor;

instructions for modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions;

instructions for statistically analyzing across at least one frequency of the predicted transfer functions for the plurality of listening positions; and

instructions for selecting a correction factor based on the statistical analysis.

13.     The machine readable medium of claim 12, where the statistical analysis indicates efficiency of the predicted transfer functions for the plurality of listening positions.

14.     The machine readable medium of claim 12, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.

5    15.     The machine readable medium of claim 12, where the statistical analysis indicates flatness for the predicted transfer functions.

16.     The signal-bearing medium of claim 12, further comprising logic for recommending a specific correction factor.

10    17.     In an audio system comprising at least one loudspeaker and at least one listening position, a method for selecting at least one correction factor for the audio system, the method comprising:

        recording transfer functions at the listening position;

        determining potential correction factors;

15            modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions;

        statistically analyzing the predicted transfer functions; and

        selecting at least one correction factor based on the statistical analysis.

20    18.     The method of claim 17, where the potential correction factor is a non-temporal correction factor.

19.     The method of claim 18, where the non-temporal correction factor is selected from the group consisting of gain, amplitude, and equalization.

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20.     The method of claim 17, where the potential correction factor is a temporal correction factor.

21.     The method of claim 17, where the statistical analysis indicates efficiency of the

30    predicted transfer functions.

22.    The method of claim 21, where efficiency is examined for predetermined frequencies.

23.    The method of claim 22, where selecting a correction factor based on the statistical analysis comprises selecting a value for the correction factor to increase efficiency of the audio system in the predetermined frequencies.

24.    The method of claim 23, where the potential correction factor comprises potential volume correction; and

where selecting a value to increase efficiency comprises selecting a value that decreases volume of at least one of the loudspeakers in the audio system.

25.    The method of claim 17, where recording transfer functions comprises recording transfer functions at a plurality of listening positions; and

where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.

26.    The method of claim 17, where the statistical analysis indicates flatness for the predicted transfer functions.

27.    A signal-bearing medium having instructions for causing a computer to execute a method, the signal-bearing medium comprising:

logic for recording transfer functions at the listening position;

logic for determining potential correction factors;

logic for modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions;

logic for statistically analyzing the predicted transfer functions.

28.    The signal-bearing medium of claim 27, further comprising logic for recommending a specific correction factor.

29.    A method for selecting at least one correction factor for audio system comprising:

recording transfer functions at at least one listening position;

determining potential correction factors;

determining potential values for at least one parameter in the audio system

modifying the transfer functions based on the potential values in order to generate predicted transfer functions;

5      statistically analyzing the predicted transfer functions;

modifying the statistical analysis based on the potential correction factors; and

selecting at least one correction factor based on the modified statistical analysis.

30. The method of claim 29, where modifying the statistical analysis comprises applying
10     potential equalization factors.

31. The method of claim 30, where recording transfer functions comprises recording transfer functions at a plurality of listening positions;

where the statistical analysis determines a frequency with a maximum spatial variance
15     for the predicted transfer functions, and

wherein the potential equalization factors are applied at the frequency with the maximum spatial variance for a predicted transfer function.

32. The method of claim 31, where the potential equalization factors comprise a center
20     frequency at the frequency with the maximum variance, a bandwidth setting, a level setting.